AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-20. (Canceled)

20. (Previously presented) A method for producing a mammalian cultured inner cell mass cell by nuclear transfer comprising:

(i) inserting a nucleus of a diploid non-human mammalian differentiated somatic cell in the G1 phase of the cell cycle into an unactivated, enucleated metaphase II-arrested non-human mammalian oocyte of the same species to reconstruct an embryo;

(ii) activating the resultant reconstructed embryo;

(iii) culturing said activated, reconstructed embryo; and

(iv) isolating and culturing inner cell mass cells obtained from said cultured activated, reconstructed embryo to obtain a cultured inner cell mass cell.

21. (Previously presented) The method of claim 20, wherein said diploid non-human mammalian differentiated cell in the G1 phase of the cell cycle is a fibroblast cell.

22. (Previously presented) The method of claim 20, comprising culturing said activated, reconstructed embryo to form a blastocyst, and culturing inner cell mass cells obtained from said blastocyst to produce a cultured inner cell mass cell.

23. (Previously presented) The method of claim 20, wherein said nucleus is genetically modified.

24. (Previously presented) The method of claim 23, wherein the genome of said genetically modified nucleus comprises an insertion, deletion, or modification.

25. (Previously presented) The method of claim 24, wherein said genetically modified nucleus comprises an exogenous DNA.

26. (Previously presented) The method of claim 20, wherein said nucleus is isolated from a mammal selected from the group consisting of sheep, cows, pigs, horses, rabbits, rodents, mice, and rats.

27. (Previously presented) The method of claim 26, wherein said nucleus comprises at least one genetic modification.

28. (Previously presented) The method of claim 20, wherein said nucleus is isolated from an ungulate.

29. (Previously presented) The method of claim 20, wherein said diploid non-human mammalian differentiated cell in the G1 phase of the cell cycle is expanded *in vitro* prior to step (i).

30. (Previously presented) Method of claim 20, wherein the cultured inner cell mass cell is a cow or pig inner cell mass cell.

31. (Previously presented) A method of producing a non-human mammalian embryo by nuclear transfer comprising:

(i) transfer of a nucleus of a non-human mammalian cell into an unactivated, enucleated metaphase II-arrested oocyte of the same species as the donor cell nucleus;

(ii) activation of the recipient oocyte containing the donor cell nucleus; and

(iii) incubation of the activated oocyte to provide an embryo;

wherein the donor cell nucleus is from a non-human mammalian differentiated cell in the G1 phase of the cell cycle.

32. (Previously presented) The method of claim 31, wherein said non-human mammalian embryo is selected from the group consisting of sheep, cows, pigs, horses, rabbits, rodents, mice, and rats.

33. (Previously presented) The method of claim 31, wherein said non-human mammalian embryo is an ungulate.

34. (Previously presented) A method of producing a non-human mammalian embryo by nuclear transfer comprising:

(i) transfer of a nucleus of a non-human mammalian cell into an unactivated, enucleated metaphase II-arrested oocyte of the same species as the donor cell nucleus;

(ii) activation of the recipient oocyte containing the donor cell nucleus; and

(iii) incubation of the activated oocyte to provide an embryo;

wherein the donor cell nucleus is from a non-human mammalian differentiated cell in the G1 phase of the cell cycle and wherein said embryo is capable of developing to term.

35. (Previously presented) The method of claim 34, wherein said non-human mammalian embryo is selected from the group consisting of sheep, cows, pigs, horses, rabbits, rodents, mice, and rats.

36. (Previously presented) The method of claim 34, wherein said non-human mammalian embryo is an ungulate.

37. (New) A method for producing a mammalian cultured inner cell mass cell by nuclear transfer comprising:

(i) inserting a nucleus of a diploid non-human mammalian differentiated somatic cell in the G1 phase of the cell cycle into an unactivated, enucleated metaphase II-arrested non-human mammalian oocyte of the same species to reconstruct an embryo;

(ii) activating the resultant reconstructed embryo;

(iii) culturing said activated, reconstructed embryo; and

(iv) isolating and culturing inner cell mass cells obtained from said cultured activated, reconstructed embryo to obtain a cultured inner cell mass cell, wherein the cultured inner cell mass cell can differentiate.

38. (New) The method of claim 37, wherein said diploid non-human mammalian differentiated cell in the G1 phase of the cell cycle is a fibroblast cell.

39. (New) The method of claim 37, comprising culturing said activated, reconstructed embryo to form a blastocyst, and culturing inner cell mass cells obtained from said blastocyst to produce a cultured inner cell mass cell.

40. (New) The method of claim 37, wherein said nucleus is genetically modified.

41. (New) The method of claim 40, wherein the genome of said genetically modified nucleus comprises an insertion, deletion, or modification.

42. (New) The method of claim 41, wherein said genetically modified nucleus comprises an exogenous DNA.

43. (New) The method of claim 37, wherein said nucleus is isolated from a mammal selected from the group consisting of sheep, cows, pigs, horses, rabbits, rodents, mice, and rats.

44. (New) The method of claim 43, wherein said nucleus comprises at least one genetic modification.

45. (New) The method of claim 37, wherein said nucleus is isolated from an ungulate.

46. (New) The method of claim 37, wherein said diploid non-human mammalian differentiated cell in the G1 phase of the cell cycle is expanded *in vitro* prior to step (i).

47. (New) Method of claim 37, wherein the cultured inner cell mass cell is a cow or pig inner cell mass cell.

48. (New) A method for producing a mammalian cultured inner cell mass cell by nuclear transfer comprising:

(i) inserting a nucleus of a diploid non-human mammalian differentiated somatic cell in the G1 phase of the cell cycle into an unactivated, enucleated metaphase II-arrested non-human mammalian oocyte of the same species to reconstruct an embryo;

(ii) activating the resultant reconstructed embryo;

(iii) culturing said activated, reconstructed embryo to form a cultured embryo that can develop to term when transferred to a host mammal of the same species; and

(iv) isolating and culturing inner cell mass cells obtained from said cultured activated, reconstructed embryo to obtain a cultured inner cell mass cell, wherein the cultured inner cell mass cell can differentiate.

49. (New) The method of claim 48, wherein said diploid non-human mammalian differentiated cell in the G1 phase of the cell cycle is a fibroblast cell.

50. (New) The method of claim 48, comprising culturing said activated, reconstructed embryo to form a blastocyst, and culturing inner cell mass cells obtained from said blastocyst to produce a cultured inner cell mass cell.

51. (New) The method of claim 48, wherein said nucleus is genetically modified.

52. (New) The method of claim 51, wherein the genome of said genetically modified nucleus comprises an insertion, deletion, or modification.

53. (New) The method of claim 52, wherein said genetically modified nucleus comprises an exogenous DNA.

54. (New) The method of claim 48, wherein said nucleus is isolated from a mammal selected from the group consisting of sheep, cows, pigs, horses, rabbits, rodents, mice, and rats.

55. (New) The method of claim 54, wherein said nucleus comprises at least one genetic modification.

56. (New) The method of claim 48, wherein said nucleus is isolated from an ungulate.

57. (New) The method of claim 48, wherein said diploid non-human mammalian differentiated cell in the G1 phase of the cell cycle is expanded *in vitro* prior to step (i).

58. (New) Method of claim 48, wherein the cultured inner cell mass cell is a cow or pig inner cell mass cell.